Installation and Operation Manual

VER:1.3

Please read the operation manual carefully
before installing and using this unit

Internal Packing List

No.	Name	QTY/ Unit	Remark
1	Speed Dome Camera	1	
2	AC24V power supply adapter	1	
3	English Operation Manual	1	

External Packing List

No.	Name	QTY/ Unit	Remark
1	Speed Dome Camera	1	
2	AC24V power supply adapter	1	
3	English Operation Manual	1	
4	Wall Mount Bracket	1	
5	M6×14 stainless steel hexagon socket screw	4	
6	Φ6 spring washer	4	
7	Φ6 flat washer	4	
8	5mm Hexagon socket wrench	1	
9	3mm Hexagon socket wrench	1	

SPECIFICATION

ITEM	INDOOR	OUTDOOR
Quick Installation	No	YES
Surge Protection	Yes (Video & Power & RS485)	
OFF Memory	Yes	
Auto Home Function	Yes	
Heater & Fan	No	Yes
IP Grade	-	IP66
Auto Flip	Yes	
Auto Back Home	Yes	
Pan	Pan Range 360 Degree, Speed 0.5~240 Degree/s	
Tilt	Tilt Range 0~100 Degree, Speed 0.5~120 Degree/s	
Preset	128 Preset Positions (Max)	
Auto Cruise	1 Auto Cruising Tracks (Max)	
Power Source	AC 24V /15W	AC 24V / 20W (Heater on 45W)
Operating Temp.	0℃ ~ +50℃	-30℃ ~ +50℃
Weight	Approx 1.4Kg	Approx 4.5Kg
Dimensions	Φ 133.2×178mm (H)	Φ 200×336mm (H)

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Warnings !

- Lightning proof equipment must be installed when the speed dome camera is installed in open area.
- Make sure the input voltage and normal rated power before powered up.

Relation Table of 24VAC Cable Diameter and Transmission distance

When the cable diameters equal, and voltage wastage rate of 24VAC is under 10%, the maximum transmission distance is recommended. (As to AC equipments, the maximum allowed voltage wastage rate is 10%) For example: An equipment with rating power of 80VA and installed at 10 meters away from transformer demands the maximum cable diameter of 0.8mm (square meter).

Cable Diameter (mm) Square Meter

VA（W） Feet(m)	0.8000	1.000	1.250	2.000
10	283（86）	451（137）	716（218）	1811（511）
20	141（42）	225（68）	358（109）	905（275）
30	94（28）	150（45）	238（109）	905（275）
40	70（21）	112（34）	179（54）	452（137）
50	56（17）	90（27）	143（43）	362（110）
60	47（14）	75（22）	119（36）	301（91）
70	40（12）	64（19）	102（31）	258（78）
80	35（10）	56（17）	89（27）	226（68）
90	31（9）	50（15）	79（24）	201（61）
100	28（8）	45（13）	71（21）	181（55）
110	25（7）	41（12）	65（19）	164（49）
120	23（7）	37（11）	59（17）	150（45）
130	21（6）	34（10）	55（16）	139（42）
140	20（6）	32（9）	51（15）	129（39）
150	18（5）	30（9）	47（14）	120（36）
160	17（5）	28（8）	44（13）	113（34）
170	16（4）	26（7）	42（12）	106（32）
180	15（4）	25（7）	39（11）	100（30）
190	14（4）	23（7）	37（11）	95（28）
200	14（4）	22（6）	35（10）	90（27）

※ When the temperature reached 40 degrees, the fan started to work; until the temperature dropped to 25 degrees, the fan stop working.
When the temperature is as low as 4 degrees, the heater work; until the temperature raised to 10 degrees, the in heat stop working.
The temperature difference is under 2 degrees

1. PRECAUTIONS

(1) Do not attempt to disassemble the camera.

To prevent electric shock, do not remove screws or covers.

There are no user-serviceable parts inside.

Ask qualified service personnel for servicing.

(2) Handle the camera with care.

Do not abuse the camera. Avoid striking, shaking, etc. The camera could be damaged by improper handling or storage.

(3) Do not use strong or abrasive detergents when cleaning the camera body.

Use a dry cloth to clean the camera when it is dirty.

When the dirt is hard to remove, use a mild detergent and wipe gently. Care should be taken not to scratch the dome when wiping it.

Afterwards, wipe off the remained part of the detergent in it with a dry cloth.

(4) Never face the camera towards the sun.

Do not aim the camera at bright objects. Whether the camera is in use or not, never aim it at the sun or other extremely bright objects. Otherwise, blooming or smear maybe caused.

(5) Never face the camera towards a place exposed to light sources for a long time.

If light sources such as spot light cause burn-in on the display screen, part of image may discolor due to deterioration of color filter in CCD when changing aim of the camera etc.

(6) Do not install this camera upside down.

This camera is designed for mounting on the ceiling or wall. Using this camera installed upside down, for example, mounted on the floor, may cause malfunction.

(7) Do not operate the camera beyond the specified temperature, humidity or power source ratings.

Do not use the camera in an extreme environment where high temperature or high humidity exists. Do not place near heat sources such as radiators, stoves or other units that produce heat.

Use the Indoor Speed Dome camera under conditions where temperature is between -10°C - +40°C, and humidity is below 90 %. The input power source is AC24V.

(8) Do not install the camera near the air out-let of an air conditioner.

The lens may become cloudy due to condensation if the camera is used under the following conditions.

• Rapid temperature fluctuations by switching the air conditioner on and off

• Rapid temperature fluctuations due to frequent door opening and closing

• Use in an environment where eyeglasses become foggy

• Use in a room filled with cigarette smoke or dust.

If the lens becomes cloudy due to condensation, remove the dome cover and wipe all moist surfaces with a soft cloth.

(9) Consumables

Parts having contacts such as the lens-drive motors, cooling fan motor and slip-rings built inside the camera are subject to wear with time. About replacement and maintenance of such parts, please ask the nearest service center.

(10) Do not aim the camera at the same object for a long time.

Burn-in of an image may be caused on the fluorescent screen of CRT.

2.OPERATION

The speed dome camera can be controlled remotely horizontal and vertical movement. It is controlled remotely from the keyboard or controller through a serial connection to the RS-485 connector.

The speed dome camera will conduct a self-check after powered up and the monitor will display as following: "P：P_D，ID：001，V：2a1". The information will be disappeared after the self-check is finished.（Protocol and ID code will be displayed according to the users' choice）

※If there is any alteration, please according to actual product edition.

Normal Function：

2.1 Pan/Tilt Function

The camera is capable of moving vertically and horizontally. The Pan/Tilt speed is variable for given amount of joystick deflection.

2.2 Lens Function

2.2.1 Zoom Lens Function

Transform the view angle of the camera（zoom in / zoom out），press[TELE] or [WIDE]。

2.2.2 Focus Function

In some special circumstance, users need conduct focus manual, he can press [NEAR] or [FAR] to transform the focus and press [CALL] + 59 + [ENTER] or operate the joystick to recover the auto mode.

2.2.3 Iris Function

In normal circumstance, iris is in auto mode. If users need to change the iris level, they can press [OPEN] or [CLOSE] to adjust. Press [CALL] + 60 + [ENTER] or operate the joystick, iris will be auto.

2.3 Preset Function

The speed dome camera is capable of going to 128 preset positions. Each is with its own P/T/Z and focus. （Preset positions 50-66 are reserved for auxiliary functions.） When preset a camera position, the P/T/Z and focus will be memorized for that position.

2.3.1 To set a preset position

[PRESET] + nnn + [ENTER], the LCD displays： SET PRESET ： nnn

nnn→the number of preset position: 1~128

2.3.2 To call a preset position

When camera positions have been preset, you can enter a memorized camera position number.

[CALL] + nnn + [ENTER], the LCD displays： CALL PRESET：nnn

nnn→the number of preset position: 1~128

2.3.3 To delete a preset position： （Only be effective to Protocol COP-2. Some special keyboards no function）

[DELPRESET] + nnn + [ENTER], the LCD displays：CLEAR PRESET ： nnn

nnn→the number of preset position which will be deleted

2.4 Auxiliary Functions List

Operation	Function
F1 + 0 + Off	Camera reset
F1 + 1 + On	Backlight compensation ON
F1 + 1 + Off	Backlight compensation OFF
F1 + 2 + On	LOW illumination ON
F1 + 2 + Off	Auto LOW illumination

F1 + 3 + On	Menu/Display ON
F1 + 3 + Off	Menu/Display OFF
F1 + 4 + On	Digital zoom ON
F1 + 4 + Off	Digital zoom OFF
F1 + 5 + On	Keyboard LCD display Back Light ON
F1 + 5 + Off	Keyboard LCD display Back Light OFF
F1 + 6 + On	Auto FOCUS
F1 + 6+ Off	Manual FOCUS
F1 + 7 + On	Auto IRIS
F1 + 7+ Off	Manual IRIS
F1 + 8 + On	Auto White balance (AWB)
F1 + 11 + On	Color picture
F1 + 11+ Off	B/W picture

Operation	Function
Call + 33 + Enter	Pan 180°
Call + 51+ Enter	Scan start
Preset + 51+ Enter	Set the start position of scan
Call + 52+ Enter	Scan stop
Preset + 52+ Enter	Set the end position of scan
Call + 53 + Enter	Auto cruise from No.1 preset position to NO.16 preset position
Preset + 53+ Enter	Do self-test
Preset + 54+ Enter	Camera reset
Call + 55+ Enter	Backlight compensation ON
Preset + 55+ Enter	Backlight compensation OFF
Call + 58+ Enter	Digital zoom ON
Preset + 58+ Enter	Digital zoom OFF
Call + 59+ Enter	Auto FOCUS
Preset + 59+ Enter	Manual FOCUS
Call + 60+ Enter	Auto IRIS
Preset + 60+ Enter	Manual IRIS
Call + 61+ Enter	Auto White balance (AWB)
Preset + 61+ Enter	Manual white balance
Call + 63+ Enter	Image Mirror ON
Preset + 63+ Enter	Image Mirror OFF
Call + 64+ Enter	Show of operation
Preset + 64+ Enter	No show of operation
Call + 67+ Enter	Color video
Preset + 67+ Enter	B/W video
Call + 90+ Enter	Running SEQ after five minutes OFF
Preset + 90+ Enter	Running SEQ after five minutes ON
Call + 95+ Enter	Camera menu ON

Operation	Function
Call + n + Enter	To call the number N preset position
Preset + n + Enter	To set the number N preset position
Preset + n + Off	Delete the number N preset position
Cam + n + Enter	Set the dome address “n”
Shot + n + Enter	N=1：Auto the cruise track
Shot + n + Off	N=1：Stop the cruise tracks
Wide	ZOOM wide
Tele	ZOOM tele
Far	FOCUS far
Near	FOCUS near
Open	IRIS open
Close	IRIS close

(1) Title Display Function

No.64 preset position can turn on or turn off the display function (including self-check information display) of some certain cameras. If the No.64 preset position is a normal one, the camera does not have the display function (including self-check information display).

(2) When camera performs cruise function, the tolerant state is as follows:

To scan point by point automatically from No. 1 preset position to No. 16 preset position. The cruise will not scan those positions where certain positions are un-preset or deleted after preset, and resort time for each preset position is **3** seconds;

(3) When camera performs scan function, the tolerant state is as follows:

The camera will scan automatically between two designated positions, namely “starting point” (left) and “end point” (right). The resort time at “starting point” and “end point” is 3 seconds; states of dome camera are shown below. The dome camera will stop scan and implement new action when receiving qualified command.

Note: The dome camera may result in accumulative deviation in parameters after serving a long period. The starting point and end point of scan shall be reset.

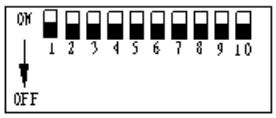
(4) The item marked with * means the camera have this function, otherwise it will show “NO FUNCTION”。

5. Special Function—Power-off Protection

When the camera is under scan or cruise track, and power off occurs, the camera will save the state before the power-off. When power is resupplied, the camera will continue to perform the scan or cruise track automatically under the same state before power-off. Should scan or cruise track are not performed before power-off, the camera will stop at the first preset position automatically.

3.ID SETTING

ID of this speed dome can be set by the switch with 10 codes. Below is the detail of setting ID code:



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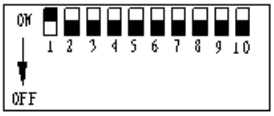

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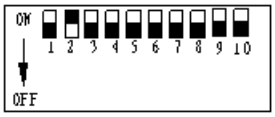

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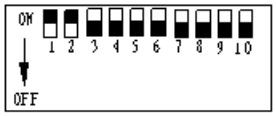

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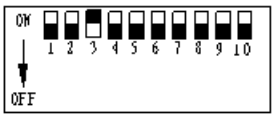

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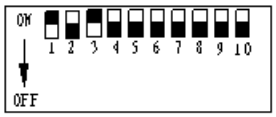

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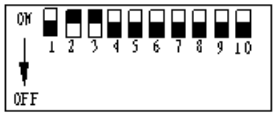

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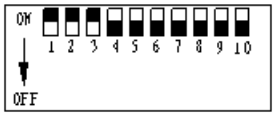

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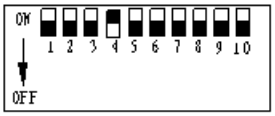

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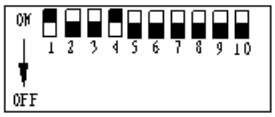

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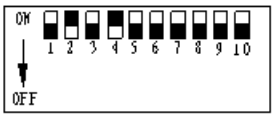

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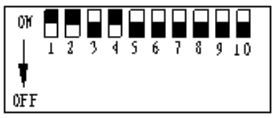

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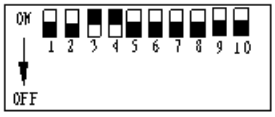

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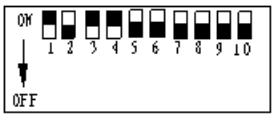

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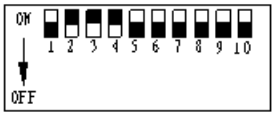

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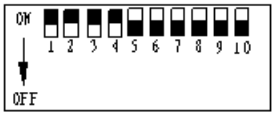

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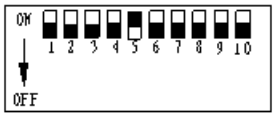

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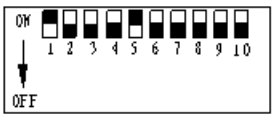

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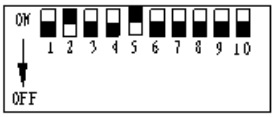

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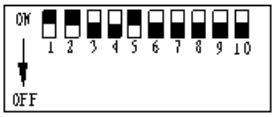

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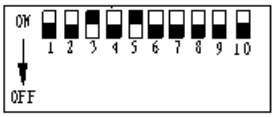

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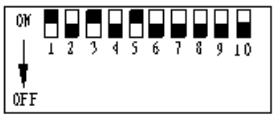

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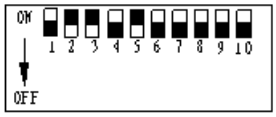

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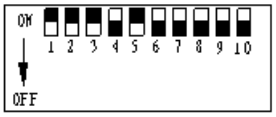

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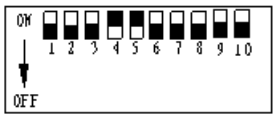

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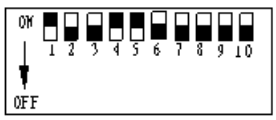

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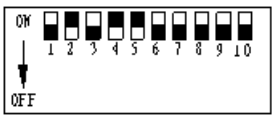

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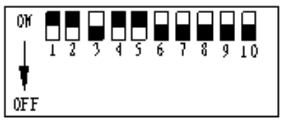

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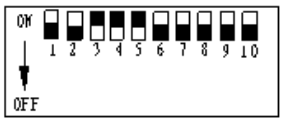

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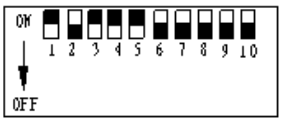
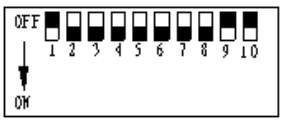
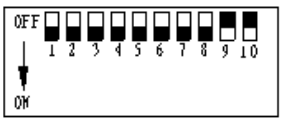


29

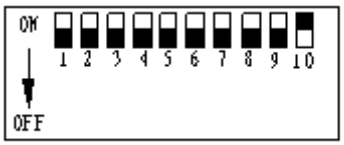


254



255

Note：Control cables can connect multiple speed dome cameras in parallel provided that No. 10 ID code of the farthest camera is set to “ON”. The operation is required when the control distance is quite far.



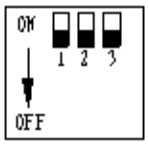
The No. 10 ID code should be set to “ON” for the last camera connected to the daisy chain.

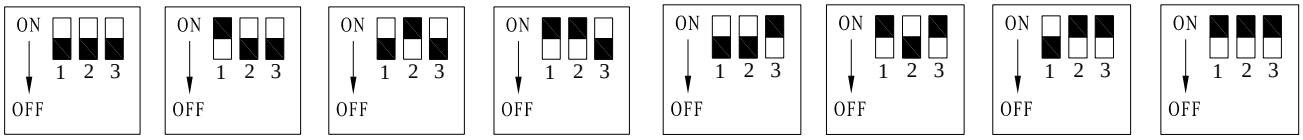
4.PROTOCOL SETTING

Protocol of this speed dome can be set by the switch with 3 protocol codes. Below is the detail of setting protocol code:

Note：**All setting must be operated after power off.**

Power on until it is completed.!

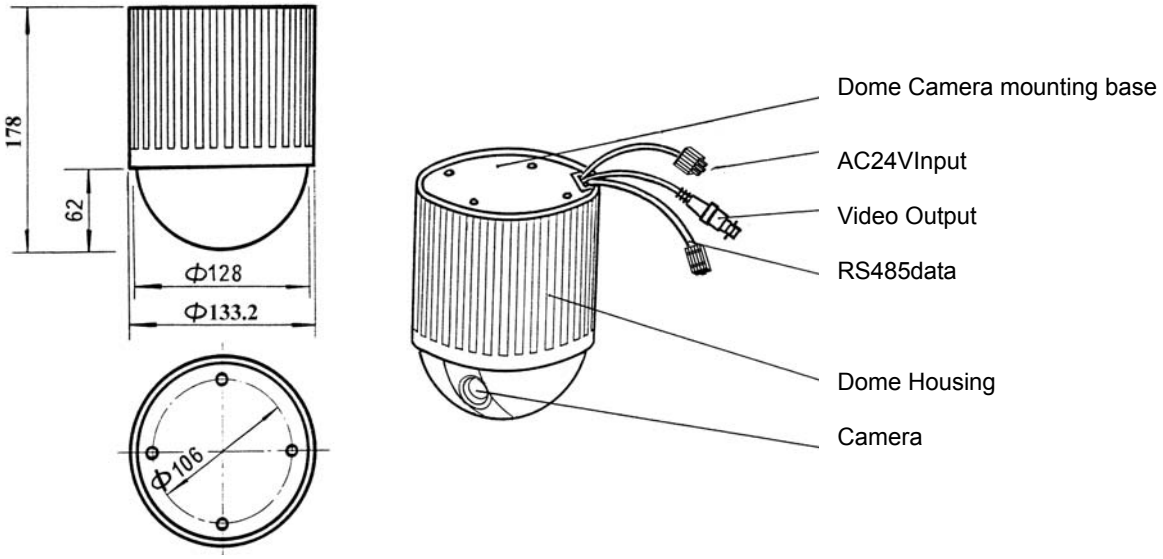
Protocol  setting



COP-2 PelcoP9600 PelcoP4800 PelcoD2400 PelcoD4800 PelcoD9600 CPTD CPT

5. CONSTRUCTION

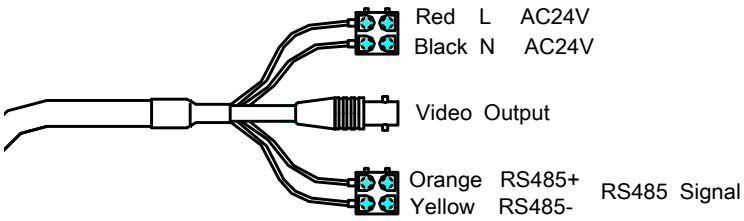
5.1 Indoor Speed Dome Camera



◆ CONNECTIONS

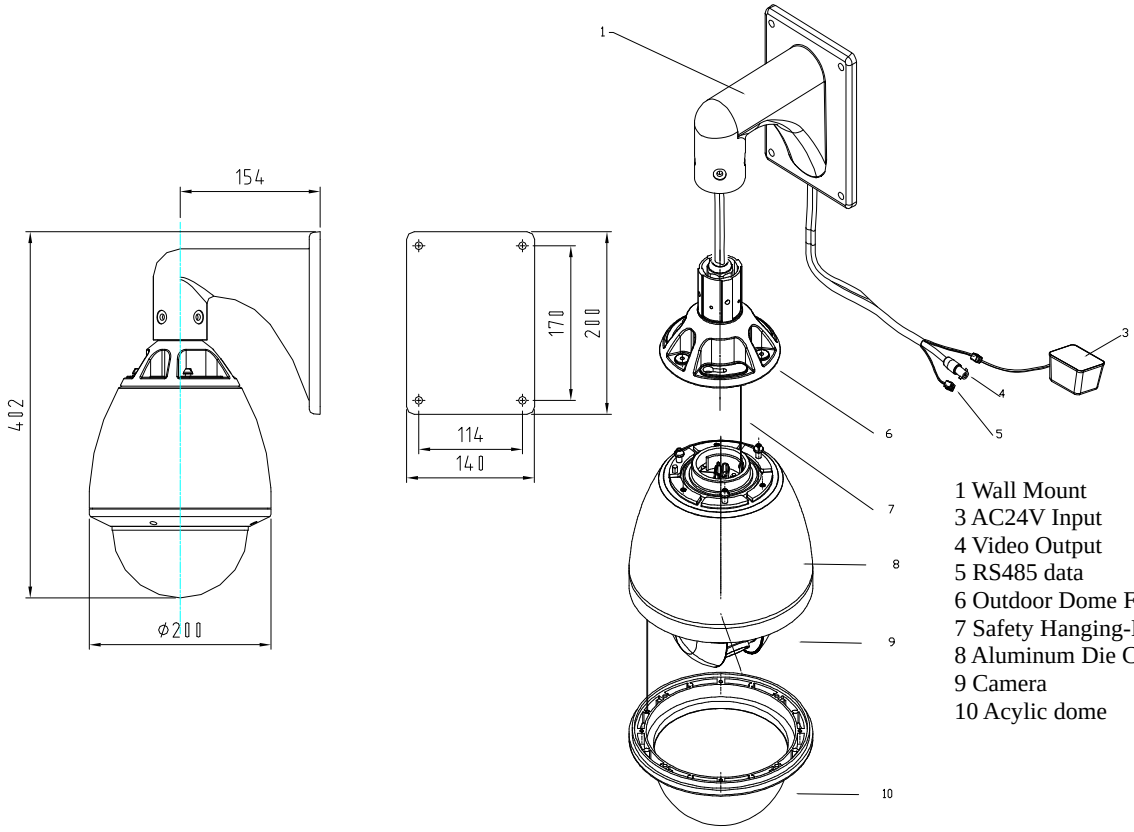
PRECAUTIONS

※ **The following connections should be made by qualified service personnel or system installers in accordance with all local codes.**



Note: When powered up, the camera performs a self-check for about 2 minutes (including one panning, tilting, zooming and focusing operation). During the period, control operations are not executed.

5.2 Outdoor Speed Dome Camera

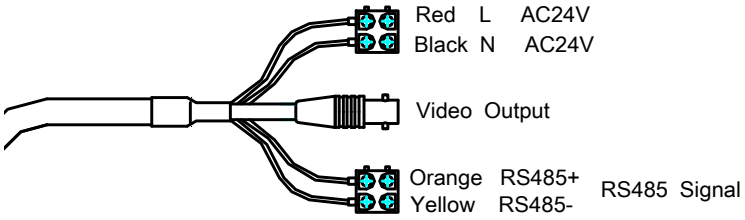


1 Wall Mount
3 AC24V Input
4 Video Output
5 RS485 data
6 Outdoor Dome Flange
7 Safety Hanging-Lock
8 Aluminum Die Cast Housing
9 Camera
10 Acylic dome

◆ CONNECTIONS

PRECAUTIONS

※ **The following connections should be made by qualified service personnel or system installers in accordance with all local codes.**



Note: When powered up, the camera performs a self-check for about 2 minutes (including one panning, tilting, zooming and focusing operation). During the period, control operations are not executed.

6. TROUBLESHOTING

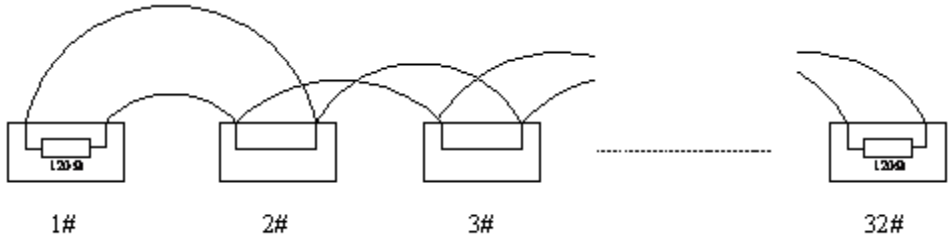
Trouble	Possible Causes	Solution
No action, no video after powered up	Power supply is not well connected	Replace
	Engineering cable failure	Eliminate
	The power supply is not well connected	Correct
Self-check isn't normal, but image is normal and obstacle found in operation.	Machine failure	Repair
	The camera is declining	Put straight
	Voltage is low	Change power and place it near the camera The distance between AC24V power supply to dome camera must be less 50 meters
Self-check is normal but no image	The contact of video cables is incorrect	Correct
	The contact of video cables is loose	Eliminate
	Camera is damaged	Replace
Self-check is normal but it is uncontrollable	The connection of control signal is incorrect	Correct
	Camera number is not set correctly.	Reinstall
	Protocol setting is incorrect	Correct
	RS485 cable A+&B- connection is not correct	Correct
	RS485 cable is too long	The maximum cable for RS485 communication is 1.2km
	RS485 signal network is star configuration	Star distributor is used at junction of connection
Instable image	The contact of video cables is loose	Eliminate
	Voltage is low	Replace
The camera is uncontrollable and running unceasingly	Dropout occurs due to low voltage	Check ID address settings
	Self-check is abnormal	Power up again
	The operation of mainframe is not correct	Power up again
	RS485 bus line isn't equipped with matched resistance, or the resistance is not matched.	Correct
Abnormal video	Extremely bright video	No termination or high resistance

7. CONNECTION OF RS485 BUS AND TERMINATION RESISTOR

(1) Characteristics of RS485 Bus

As specified by RS485 standards. RS485 Bus is of half duplexed data transmission cables with characteristic impedance as 12. The maximum load is 32 unit loads (including main controller and controlled equipment.)

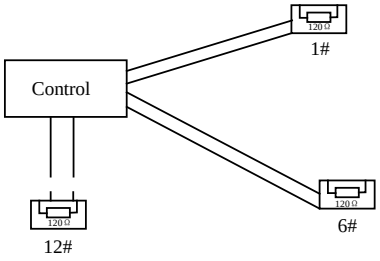
(2) The RS485standarda require a daisy-chain connection between the equipment. There must be termination resistor with 120 ohms impedance at both ends of the connection (refer to the following FIGURE)



When No. 10 bit of the Dip is set to "ON", the 120 ohms termination resistor is connected.

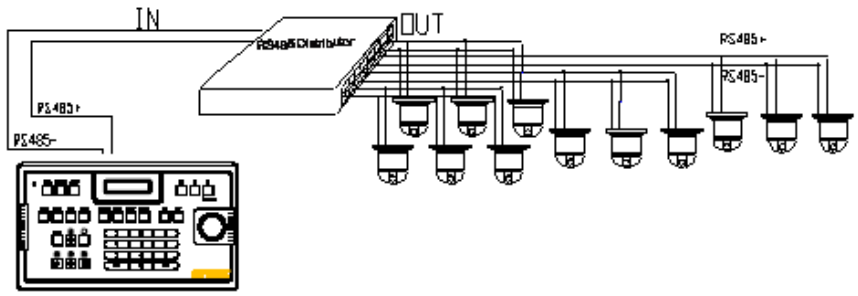
(3) Problem in Practical Connection

In some circumstances user adopts a star configuration in practical connection. The termination resistors must be connected to the two equipments (No. 6 and No. 10) that are farthest away from each other. But the connection does not meet the RS485 standards.



When the cable distance of equipments are far away, some problems, such as signal reflection, anti-jamming ability decrease are easily occur and result in the reliability decline of control signal. The resulted phenomena represent that the camera is out of control completely or interruptedly or operates automatically and fails to stop, etc. In such circumstances the factory recommends the RS485 Signal Distributor. The distributor can change the star configuration connection to the mode of connection stipulated in the RS485 standards. The mew connection achieves reliable data transmission.

RS485 Distributor



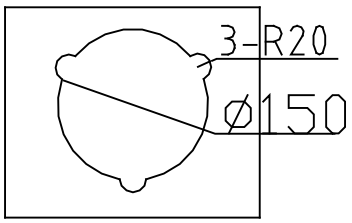
Each connection can connect 32 terminations, and practical connections must be considered.

8. INSTALLATION

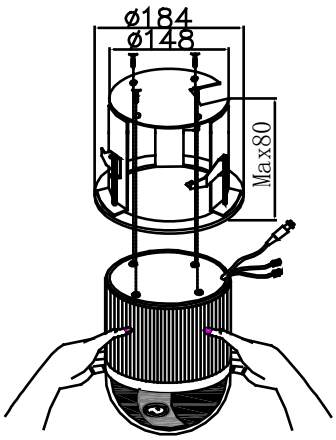
8.1 INDOOR SPEED DOME CAMERA

INDOOR EMBEDDED MOUNT(Option)：

（1）Cut a hole as following in the ceiling.

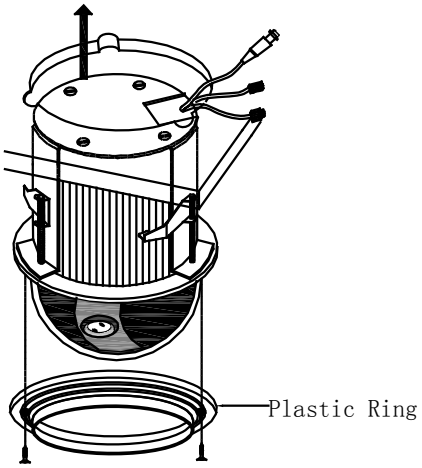


（2）Mount the Speed Dome on the embedded bracket with 4 screws.



（3）Mount the embedded bracket into the mounting holes and adjust 3 presser feet. Fix the embedded bracket.

（4）Mount the plastic ring to the camera mounting base.



8.2 Outdoor Speed Dome Camera

Note: Protocol and ID code(fig. 1)

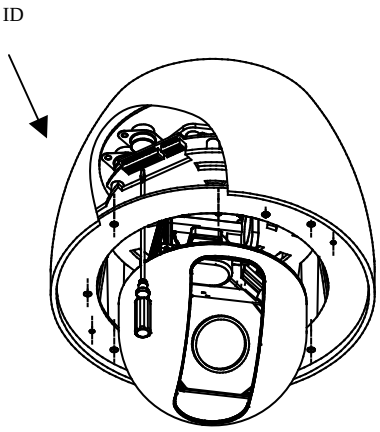


Fig. 1

A. OUTDOOR WALL MOUNT

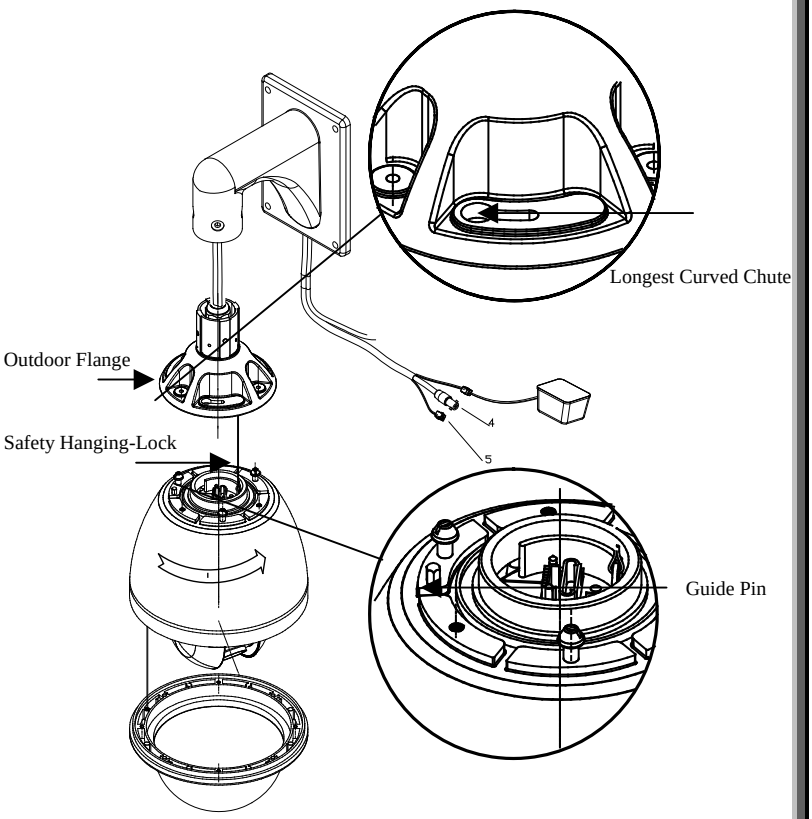
A1 WITHOUT POWER BOX

① Disassemble the outdoor flange and dome housing with wrench. Decide the protocol and ID code (fig.1), and mount the dome housing as following.

② Fix the wall bracket and connect it with outdoor flange with screws and wrench. Tighten the screws as following.

③ Connect all the cables as required.

④ Mount the Safety Hanging-Lock of the outdoor flange on the outdoor speed dome. Aim the guide pin of mounting base at the longest curved chute of outdoor flange. Fix the speed dome on the outdoor flange. Tighten the screw as following.



A2WITH POWER BOX(Option)

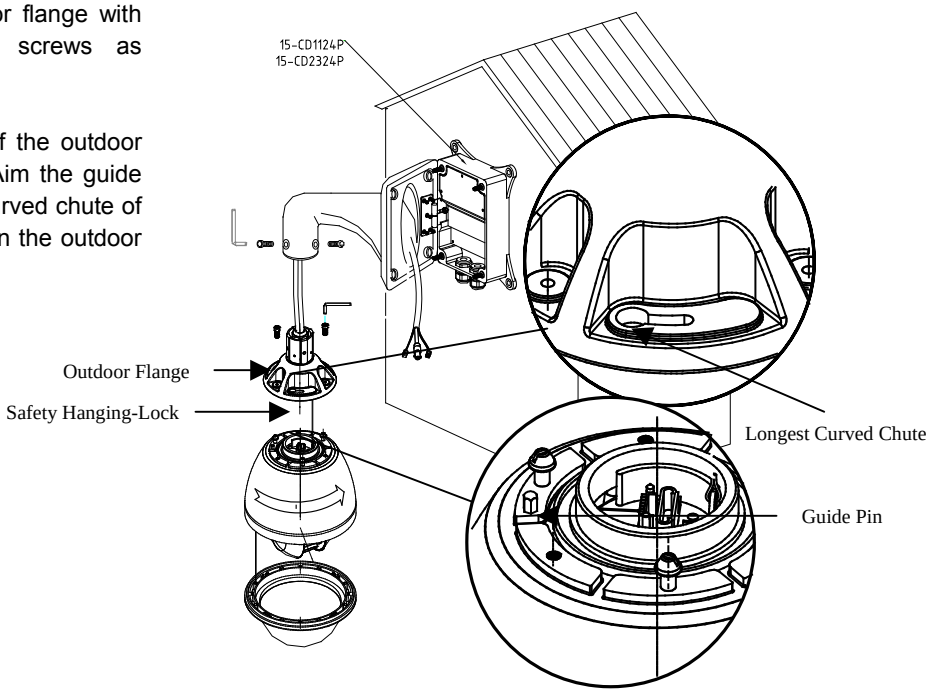
① Disassemble the Outdoor Flange and dome housing with wrench. Decide the protocol and ID code(fig.1) and mount the dome housing as following.

② Mount the power box on a solid ceiling. Mount the wall bracket on the power box.

③ Fix the wall bracket to the outdoor flange with screws and wrench. Tighten the screws as following.

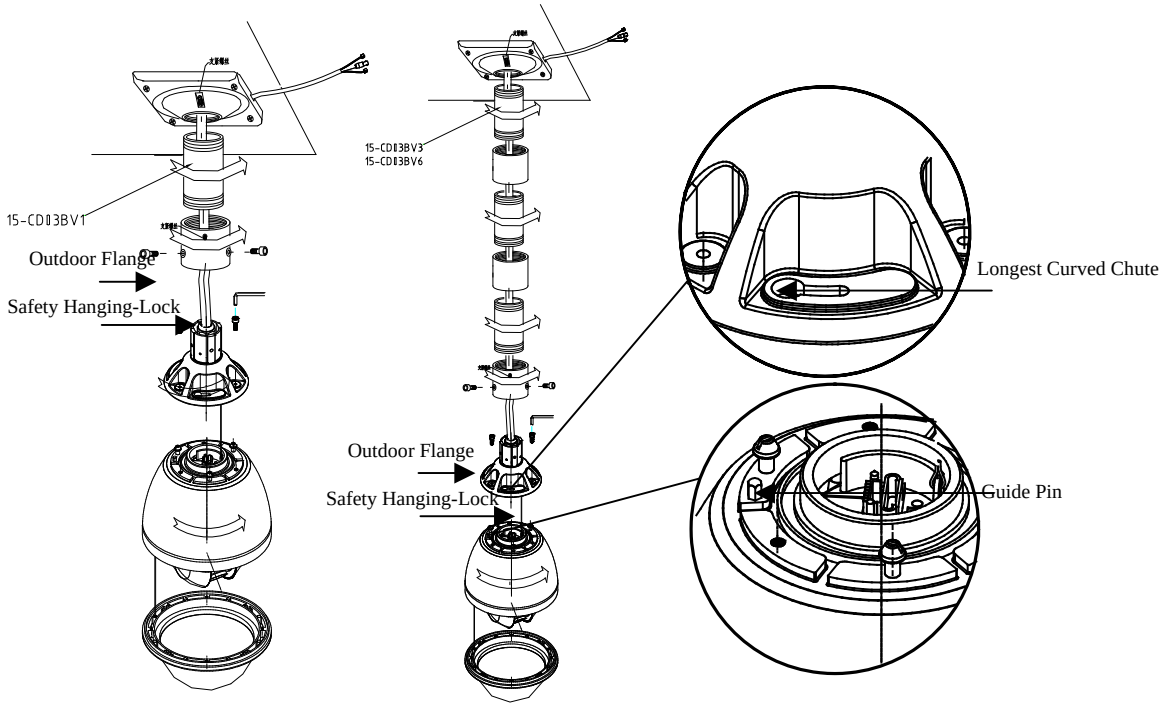
④ Connect all the cables as required.

⑤ Mount the Safety Hanging-Lock of the outdoor flange on the outdoor speed dome. Aim the guide pin of mounting base at the longest curved chute of outdoor flange. Fix the speed dome on the outdoor flange. Tighten the screw as following.



B. OUTDOOR CEILING MOUNT(Option)

① Disassemble the Outdoor Flange and dome housing with wrench. Decide the protocol and ID code(fig.1), and mount the dome housing as following.
② Fix the ceiling bracket and connect it with outdoor flange with screws and wrench. Tighten the screws as following.
③ Connect all the cables as required.
④ Mount the Safety Hanging- Lock of the outdoor flange on the outdoor speed dome. Aim the guide pin of mounting base at the longest curved chute of outdoor flange. Fix the speed dome on the outdoor flange. Tighten the screw as following.



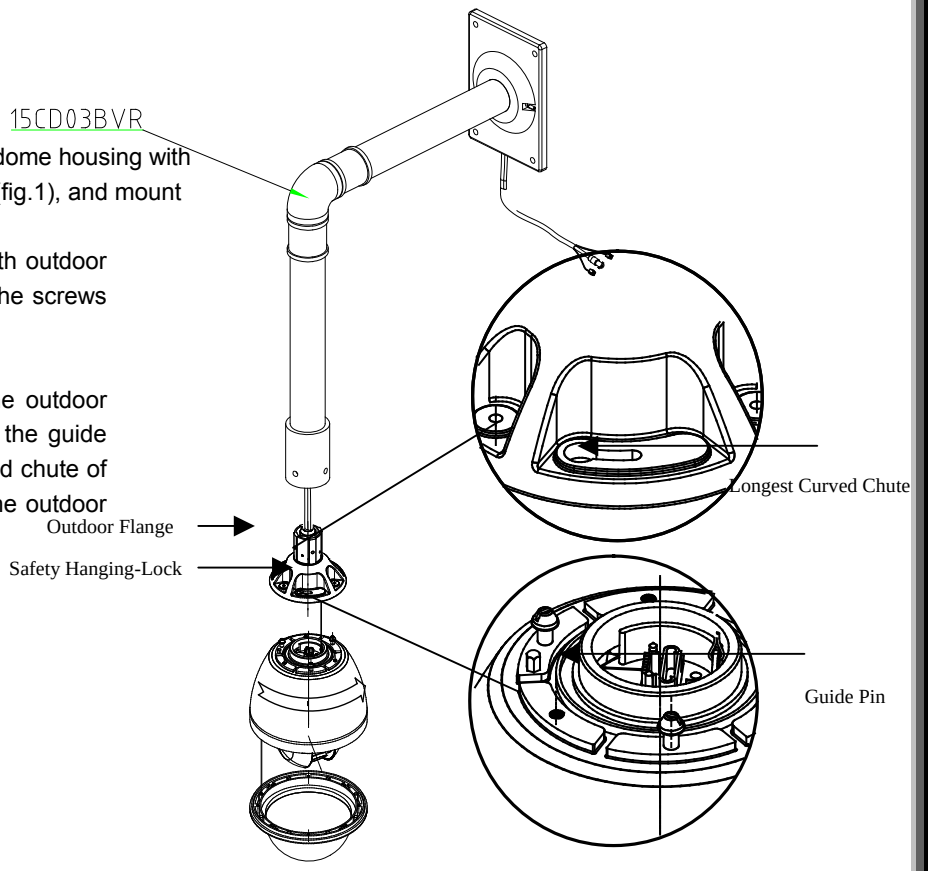
C. OUTDOOR WALL MOUNT(Option)

① Disassemble the outdoor flange and dome housing with wrench. Decide the protocol and ID code (fig.1), and mount the dome housing as following.

② Fix the wall bracket and connect it with outdoor flange with screws and wrench. Tighten the screws as following.

③ Connect all the cables as required.

④ Mount the Safety Hanging-Lock of the outdoor flange on the outdoor speed dome. Aim the guide pin of mounting base at the longest curved chute of outdoor flange. Fix the speed dome on the outdoor flange. Tighten the screw as following.



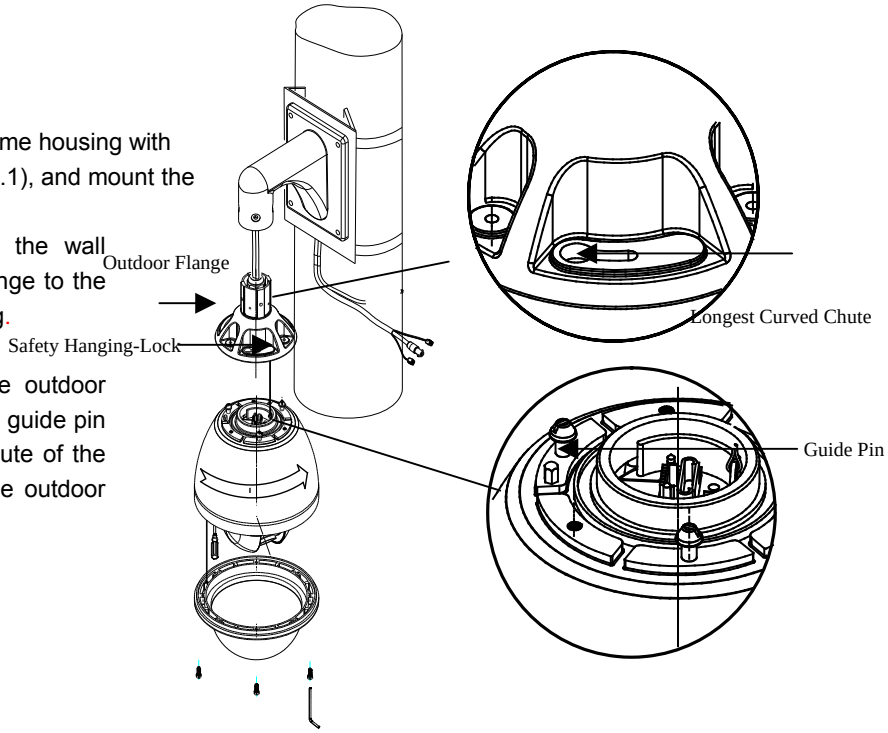
D. OUTDOOR POLE MOUNT(Option)

① Disassemble the outdoor flange and dome housing with wrench. Decide the protocol and ID code(fig.1), and mount the dome housing as following.

②Fix the pole bracket and mount it to the wall bracket with screws. Mount the outdoor flange to the wall bracket. Tighten the screws as following.

③ Connect all the cables as required.

④ Mount the Safety Hanging-Lock of the outdoor flange on the outdoor speed dome. Aim the guide pin of mounting base at the longest curved chute of the outdoor flange. Fix the speed dome on the outdoor flange. Tighten the screw as following.



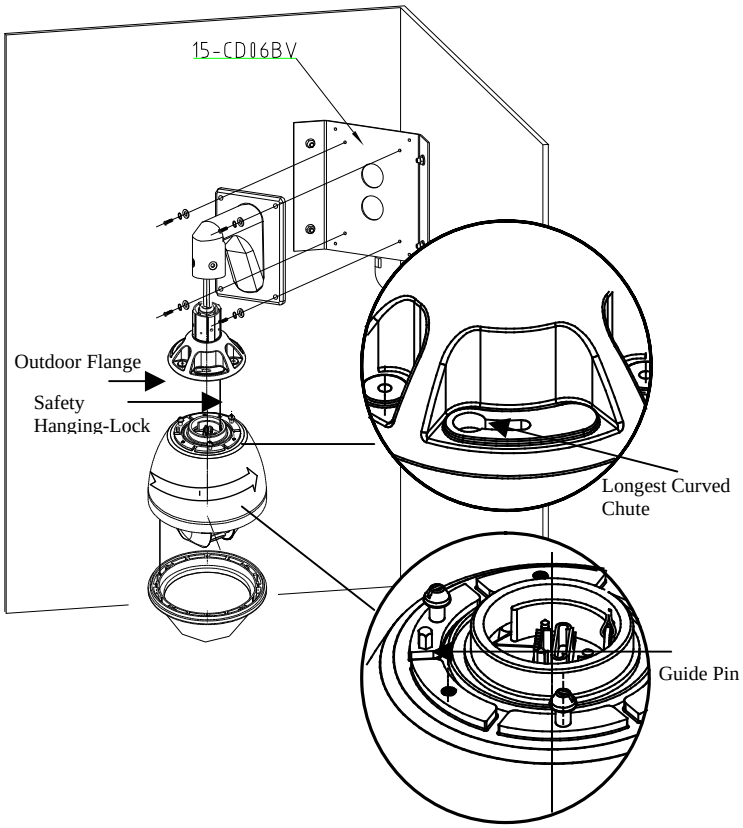
E. OUTDOOR CORNER MOUNT
(Option)

① Disassemble the outdoor flange and dome housing with wrench. Decide the protocol and ID code (fig.1), and mount the dome housing as following.

② Fix the corner bracket and connect it with outdoor flange with screws and wrench. Tighten the screws as following.

③ Connect all the cables as required.

④ Mount the Safety Hanging-Lock of the outdoor flange on the outdoor speed dome. Aim the guide pin of mounting base at the longest curved chute of outdoor flange. Fix the speed dome on the outdoor flange. Tighten the screw as following.



F. OUTDOOR CORNER MOUNT
D1WITHOUT POWER BOX **(Option)**

① Disassemble the outdoor flange and dome housing with wrench.
Decide the protocol and ID code (fig.1), and mount the dome housing as following.

② Fix the corner bracket and connect it with outdoor flange with screws and wrench. Tighten the screws as following.

③ Connect all the cables as required.

④ Mount the Safety Hanging-Lock of the outdoor flange on the outdoor speed dome. Aim the guide pin of mounting base at the longest curved chute of outdoor flange. Fix the speed dome on the outdoor flange. Tighten the screw as following.